

### Remarks/Arguments

This communication is in response to the office action mailed 04/15/2003 (Paper No. 9).

Claims 53-64 are pending in this application. Claims 1-52 are withdrawn from  
5 consideration. Claims 62-65 are new.

#### New Claims

Claims 62-65 are added to more precisely claim the invention.

New claim 62 is dependent on original claim 53 and further characterizes a  
surface of the rotor. Support for this claim is found in paragraph 31 of the application as  
10 originally filed, among other places.

New claims 63 and 64 are dependent on claim 53 and further characterize  
formation of the piezoelectric actuator. These claims find support in paragraph 52 of the  
specification as filed, among other places.

New claim 65 is narrower in scope than original claim 53 and finds support in the  
15 specification in many of the same places supporting original claim 53, among other  
places.

#### Claim Rejections – 35 USC § 103

The Applicant traverses the rejection of claims 53-61 under 35 U.S.C. §103(a).

#### *Regarding Claim 53:*

20 Claim 53 recites “forming within the opening a rotor and a pivotal connection to  
the stator.” In discussing these limitations, the Examiner directs the Applicant to col. 12,  
lines 3-15 and fig. 1a-b of Howe (U.S. 5,043,043), stating “item electrode 17 is pivotally  
connected to stator 13.” It appears that the Examiner is inferring a pivotal connection

between "electrode 17" and stator 13 from fig. 1a-b and col. 12, lines 3-15 of Howe.

However, it is unclear to the Applicant how there is a particular connection to be formed between the elements labeled 17 in Howe and stators 13. In fact, the elements labeled 17 in fig. 1 of Howe are not separate electrodes to be connected to stators 13, rather they are merely particular ends of stators 13. Specifically, in Howe at col. 7 lines 40-44 the elements labeled 17 are referred to as "electrode bearing ends of stators 13." Thus, stator 17 and the elements labeled 17 in fig. 1 are part of the same unitary object. The Applicant respectfully points out that "forming ... a ... connection *to* the stator" as recited in claim 53 implies forming a connection *from* another element and cannot be anticipated by any inseparable parts of a single element such as stators 13. The limitation of claim 53, "forming ... a ... connection *to* the stator," therefore, is not anticipated by the cited teachings of Howe because these teachings do not include a connection between another element and stators 13.

Furthermore, claim 53 recites that the connection to the stator be a "pivotal" connection. However, the teachings of Howe, cited by the Examiner (fig. 1 and col. 12, lines 3-15), do not include or suggest any connection to the stator that is pivotal. The Applicant requests that the Examiner specify in further detail how Howe teaches that an end of stators 13 is *pivotal* connected to stators 13, or how any other aspect of Howe's disclosure teaches a pivotal connection to stators 13. Applicant requests that the rejection of claim 53 be withdrawn on the grounds that Howe does not teach a pivotal connection to a stator.

Still further, claim 53 recites that the connection to the stator be made "within the opening" (line 6). As characterized on lines 4-5 of claim 53, this opening is in the mask

layer formed over the stator. In contrast, the Examiner has taken the position that Howe teaches forming a connection between two parts of stators 13 (electrode bearing end 17 of stators 13, and stators 13 themselves) and that this teaching anticipates limitations of claim 53. However, the Applicant respectfully points out that the connection suggested  
5 by the Examiner would necessarily be within stators 13 and not "within the opening" as claimed. In fact, forming a connection within stator 13 is contraindicative of forming a connection within an opening in the mask layer formed over the stator, as claimed. The Applicant, therefore, respectfully requests that the Examiner withdraw the rejection of claim 53, because Howe does not teach forming a connection to the stator "within the  
10 opening," as recited in claim 53.

The Examiner admits that Howe does not specifically teach "wherein the above rotor is formed within the opening" and suggests that this limitation would have been obvious to a person of ordinary skill in the art. Specifically, the Examiner states that it "would have been obvious to a person of ordinary skill in the art when the invention was  
15 made to enlarge the opening of Howe, shown at least in fig. 6e, so as (sic) rotor would be within the opening." The Applicant points out that in the teachings of Howe, the channels 89 (openings) shown in fig. 6a of Howe become the spacings *between* the rotor, bearing and stators shown in fig. 6d. (Note that the image is inverted between figs. 6c and 6d.) See, for example, col. 11 lines 14-17, wherein Howe teaches "channels 89 are...  
20 etched... to *outline* a rotor, stator, and center bearing as desired," (italics added for emphasis) and further, col. 11 lines 38-44 wherein the inversion step is taught. Thus, the openings of Howe define where the rotor *cannot be*. The rotor and stator of Howe are not within the openings showings of fig. 6a, rather they are formed of the material left over

after the openings are made. The Examiner's suggestion of enlarging these openings "so as rotor would be within the opening," is, therefore, not physically possible, much less obvious to a person of ordinary skill in the art. Thus, teaching away from the Examiner's suggestions. Enlarging the openings of Howe would merely result in a smaller rotor and eventually eliminate the rotor entirely. The Applicant respectfully requests that the Examiner withdraw the rejection of claim 53 or point out prior art teachings of "forming within the opening a rotor" as recited in claim 53.

Furthermore, the Examiner states that it "would have been obvious to a person of ordinary skill in the art when the invention was made to enlarge the opening of Howe..." without citing any motivation for this extension from the disclosure of Howe. Motivation is required to make a *prima facie* case of obviousness under §103. A *prima facie* case has, therefore, not been made and the Applicant requests that the Examiner show the requisite motivation or withdraw the rejection of claim 53.

Claim 53 recites "forming a piezoelectric actuator between the stator and the rotor." In discussing these limitations, the Examiner directs the Applicant to col. 12, lines 3-15 of Howe. The Applicant respectfully disagrees with the Examiner regarding the teachings of this section of Howe. First, Applicant reiterates the fact that elements of Howe are not separate electrodes but electrode bearing ends of stators 13. These ends are formed when the stators are formed and not part of a separate process of "forming a piezoelectric actuator between the stator and the rotor" as recited in claim 53. It is not clear to the Applicant how the stators 13 of Howe could be equivalent to something "between" the stator and the rotor. Being part of stators 13 necessarily is exclusive of being "between" the stators 13 and anything else. The Applicant respectfully requests

that the Examiner withdraw the Rejection of claim 53 because Howe does not teach anything, other than an air gap, between stators 13 and rotor 11, much less the limitations of claim 53.

In the current office action, the Examiner appears to equate the electrode bearing  
5 ends 17 of stators 13 of Howe with the "piezoelectric actuator" recited in claim 53. The Applicant respectfully points out that these are markedly different devices. The electrodes of Howe are merely electrodes, specifically configured to generate a field in conjunction with rotor 11. In contrast, a piezoelectric actuator is an electrical mechanical device configured to operate through the piezoelectric effect. The Examiner  
10 is referred to paragraph 0007 of the application as filed, among other places, for further explanation. Piezoelectric actuators include materials whose size changes in response to electric fields and, therefore, are significantly distinct from the simple electrodes of Howe. The Applicant respectfully requests that the Examiner provide further support for equating simple electrodes with a piezoelectric actuator or withdraw the rejection of  
15 claim 53.

*Regarding Claims 55-58:*

The Examiner rejects claims 55-58 without discussion. The Applicant respectfully requests that the Examiner provide support for rejection of these claims or withdraw the rejections. Applicant further points out that a discussion of the rejection of  
20 these claims will necessarily raise new issues, and that an office action that raises new issues for the first time cannot be made final.

*Regarding Claim 59:*

Claim 59 recites, "wherein forming a piezoelectric actuator is performed before forming a rotor." The Examiner rejects claim 59 and directs the Applicant to col. 10, lines 49-56 of Howe for support. However, the Applicant is unable to find teaching of a piezoelectric actuator, nor anything resembling a piezoelectric actuator, in the cited text.

5 The Applicant respectfully requests that the Examiner specifically point out teaching in the cited art relating to forming a piezoelectric element, and further, a teaching of formation that occurs before forming a rotor. The Applicant requests that the rejection of claim 59 be withdrawn on the basis that the cited art teaches neither formation of a piezoelectric element, nor formation of a piezoelectric element prior to forming a rotor.

10 *Regarding Claim 60:*

Claim 60 recites, "wherein forming a piezoelectric actuator is performed by a deposition process." The discussion above with regard to claim 59 is also applicable to claim 60. The Applicant requests that the rejection of claim 60 be withdrawn on the basis that the cited art teaches neither formation of a piezoelectric element, nor formation of a piezoelectric by a deposition process.

*Regarding Claim 61:*

The discussion above with regard to claim 59 is applicable to claim 61. The Applicant requests that the rejection of claim 61 be withdrawn on the basis that the cited art teaches neither formation of a piezoelectric element, nor formation of a piezoelectric by a mechanical process.

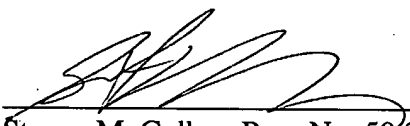
Applicants believe that all pending claims are allowable and respectfully request that the Examiner issue a Notice of Allowance. Should the Examiner have questions, the Applicants' undersigned attorney may be reached at the number provided.

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Respectfully submitted,  
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Date: September 15, 2003

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